CLAIMS:

1. An apparatus for combining multiple light signals, the apparatus comprising:

a receiving optical fiber;

an input optical fiber adapted to carry a light signal, wherein the input optical fiber is oriented along an optic axis having an inclination angle relative to the receiving optical fiber;

a collimating lens interposed along the optic axis between the input optical fiber and the receiving fiber and adapted to collimate the light signal; and

a focusing lens interposed along the optic axis between the collimating lens and the receiving fiber and adapted to focus the collimated light signal onto the receiving fiber.

2. The apparatus as set forth in claim 1, wherein the collimating lens is a convergent lens.

3. The apparatus as set forth in claim 1, wherein the collimating lens is a gradient index lens.

4 The apparatus as set forth in claim 1, wherein the collimating lens has a first diameter and a first focal length and the input optical fiber has a numerical aperture, and wherein arctan(the first diameter / (2 $*$ the first focal length)) $\geq$ arcsin(the numerical aperture).

5. The apparatus as set forth in claim 4, wherein the collimated light signal has a signal diameter, the focusing lens has a second focal length, and the focused light signal has a convergence angle, and wherein the convergence angle is equal to arctan(the signal diameter / (2 $*$ the second focal length)).

6. The apparatus as set forth in claim 5, wherein the focusing lens has a second diameter, and wherein the second diameter is larger than the signal

diameter.

7. The apparatus as set forth in claim 6, wherein the inclination angle is equal to arctan(the second diameter / (2 $*$ the second focal length)).

8. The apparatus as set forth in claim 7, wherein (the convergence angle + the inclination angle) $\leq$ arcsin(the numerical aperture).

9. A method of combining multiple light signals, the method comprising the steps of:

(a) orienting an input optical fiber along an optic axis having an inclination angle relative to a receiving optical fiber, wherein the input optical fiber carries a light signal;

(b) collimating the light signal using a collimating lens; and

(c) focusing the collimated light signal onto the receiving optical fiber using a focusing lens.

10. The method as set forth in claim 9, wherein the collimating lens is a convergent lens.

11. The method as set forth in claim 9, wherein the collimating lens is a gradient index lens.

12. The method as set forth in claim 9, wherein the collimating lens has a first diameter and a first focal length and the input optical fiber has a numerical aperture, and wherein arctan(the first diameter / (2 $*$ the first focal length)) $\geq$ arcsin(the numerical aperture).

13. The method as set forth in claim 12, wherein the collimated light signal has a signal diameter, the focusing lens has a second focal length, and the focused light signal has a convergence angle, and wherein the convergence angle is equal to arctan(the signal diameter / (2 $*$ the second focal length)).

14. The method as set forth in claim 13, wherein the focusing lens has a second diameter, and wherein the second diameter is larger than the signal diameter.

15. The method as set forth in claim 14, wherein the inclination angle is equal to arctan(the second diameter / (2 $*$ the second focal length)).

16. The method as set forth in claim 15, wherein (the convergence angle + the inclination angle) ≤ arcsin(the numerical aperature).

17. A method of facilitating combining multiple light signals, the method comprising the steps of:

(a) providing a receiving optical fiber;

(b) providing an input optical fiber adapted to carry a light signal;

(c) orienting the input optical fiber along an optic axis having an inclination angle relative to the receiving optical fiber;

(d) interposing a collimating lens along the optic axis between the input optical fiber and the receiving optical fiber for collimating the light signal; and

(e) interposing a focusing lens along the optic axis between the input optical fiber and the receiving fiber after the collimating lens, for focusing the light signal into the receiving fiber.

18. The method as set forth in claim 17, wherein the collimating lens is a convergent lens.

19. The method as set forth in claim 17, wherein the collimating lens is a gradient index lens.

20. The method as set forth in claim 17, wherein the collimating lens has a first diameter and a first focal length and the input optical fiber has a numerical aperture, and wherein arctan(the first diameter / (2 $*$ the first focal length)) $\geq$ arcsin(the numerical aperture).

21. The method as set forth in claim 20, wherein the collimated light signal has a signal diameter, the focusing lens has a second focal length, and the focused light signal has a convergence angle, and wherein the convergence angle is equal to arctan(the signal diameter / (2 $*$ the second focal length)).

22. The method as set forth in claim 21, wherein the focusing lens has a second diameter, and wherein the second diameter is larger than the signal diameter.

23. The method as set forth in claim 22, wherein the inclination angle is equal to arctan(the second diameter / (2 $*$ the second focal length)).

24. The method as set forth in claim 23, wherein (the convergence angle + the inclination angle) $\leq$ arcsin(the numerical aperture).